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IITA Bulletin

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News from NASA

Praise from the Top; Learning Technologies Project to Begin in FY98

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RSPAC has played the key role in the success of IITA during the third quarter. RSPAC executed superlative performance by delivering a major conference and a technology demo. The IITA conference in California served 150 participants from industry and IITA, while the IITA K-12 technology demo was implemented and showcased at the IV&V facility in West Virginia. Probably the most noteworthy thing about these accomplishments is that they occurred in the same week at opposite ends of the country — dividing the RSPAC workforce. IITA is very proud of RSPAC's achievements during this tight window.

The IITA Learning Technologies Project (LTP) is preparing to take the helm at the beginning of FY98. A two-day intensive retreat was held to develop a strategic plan for LTP until the year 2002. The LTP deputy will be Tom Dyson. Five major components will comprise LTP: aeronautics projects will be managed by Christiy Budenbender; regional center activities will be managed by Jennifer Sellers; digital library technology and digital library initiative projects will be managed by Nand Lal, with Susan Hobin as his deputy; special projects will be managed by Fritz Hasler, with Alan Nelson as his deputy. Special projects will contain all RSD activities ending in FY98, as well as all no-cost extensions. In FY99 special projects will manage a new solicitation.

RSPAC will continue to support LTP with some new areas of focus designed to enhance IITA products. The strategic plan is being circulated for review and a new management plan is under draft.

News Bytes

New and Improved NASA Spacelink

Now Residing at
http://spacelink.nasa.gov

An extensive upgrade of Spacelink with many new features has just gone "public" at **http://spacelink.nasa.gov/**

A summary of Spacelink and it's new design follows:

NASA Spacelink began service in 1988 as a publicly available electronic source of NASA information. The original mission was to gather materials of interest to educators and students and make them available electronically. As NASA resources on the Internet have greatly expanded, the mission has been revised to connect the public to NASA information, services, and materials, regardless of where they are available. The ultimate goal is for everyone to be able to find any available NASA information or educational resource quickly through NASA Spacelink.

An electronic library of over 13,000 files arranged by subject is still available. In addition, there are subject-related links throughout the library. For example, in the Hubble Space Telescope directory listing there are links to the Space Telescope Science Institute and other related sites. A new search engine has the ability to search both the contents of Spacelink's library and virtually all NASA World Wide Web (WWW) servers. Some details of the new design:

** Ease of Use*

- A redesigned interface with improved navigation methods. A site location strip at the top of each page shows the full path to the current location and allows quick jumps to any path location.

- The navigation bar on the left side of the screen allows for quick access to all main areas of Spacelink when viewing the contents of Spacelink directories.

- A link at the bottom of each directory and document page allows for quick access to all main areas of Spacelink.

- Graphics Optimized for Speed and Increased Performance

- Consistent Page Design for Faster Graphics Loading from Disk Cache

- Search Option Available at the Bottom of Each Page

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News Bytes (Cont.)

** New Features:*

- Text version of entire site allows for speed without graphics, compatibility with older technology, and greater accessibility for the visually impaired.

- Cool Picks features collections of interesting and educational NASA materials and sites.

- Subject-Related Links on Spacelink Directory Pages to Materials at Other NASA Sites

- New Search Engine

- Allows for faster searches, results ranking, natural language querying, and the ability to search other NASA sites on the Internet in addition to the Spacelink library.

This bulletin will also be available in Adobe Acrobat format on the Developers' Workshop Web site at: **http://developers.ivv.nasa.gov/collab/pubs/bulletin/**

CAT in the Spotlight

"Aerodynamics in Sports Technology" Lets Students Use Sports to Grasp Web

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A new cooperative agreement, Aerodynamics in Sports Technology, will contribute to NASA's educational outreach mission using an interactive study of sports to help students understand physics, mathematics, and aerodynamic principles via the World Wide Web. At the same time it will transfer aerospace technology to the private sector with the potential to revolutionize tennis equipment and tennis training.

Tennis Over the Net will be added to the existing aerodynamics of sports chapter in the NASA project *The K-8 Aeronautics Internet Textbook.* The project will create the opportunity for students and teachers to interact with engineers and tennis professionals, posing questions, suggesting experiments, and sharing results. The project brings together the engineering, educational, and sports communities in a way that brings forth the knowledge of each group and provides, for the first time, a forum to understand the interaction of the aerodynamics, biomechanics, and design technology of tennis.

NASA technology and personnel will be showcased as the project team investigates all aspects of flow visualization techniques to study the aerodynamics of the tennis ball and racket, focusing mainly on wind tunnel and computational methods. Interactive Web activities will focus on the forces, motion, and aerodynamics of sports projectiles and how these are similar to or different from the aerodynamics of other bodies such as airplanes, spacecraft, and birds.

Approaching aerodynamic through sports, flow visualization, and demonstrations of new technologies (including live videoconferencing from tennis tournaments and tennis training centers), the investigators hope to create excitement among students about science. The project is also expected to become a center of tennis media interest, and has already drawn the support of national television networks and magazines. The project team has formed alliances with leading manufacturers, designers, and coaches. The investigation will also make use of a new generation of high-speed digital video cameras that record at up to 1,000 frames per second. The team plans to record unprecedented data from the top players in the world and players at all levels.

In year one, along with the Web-based materials, a CD-ROM version of the educational materials will be developed. In years two and three the project team will begin the development and production of a series of revolutionary commercial products. These will include instructional videos, a software program for the analysis of tennis biomechanics, and a software package for racket design (developed in conjunction with Wilson Sporting Goods, the dominant company in tennis worldwide). The team will also explore the training implications of transferring NASA's virtual reality technology to tennis.

The project brings a new approach to the science of sports in the educational community as it takes the tennis industry to the cutting edge with products that have a commercial potential that reaches millions of dollars.

The investigators believe that one of the most exciting aspects of this project is that professionals in sports will be teamed with professionals in science and engineering. The message for kids will be that they do not have to choose between being either a scientist or an athlete. The two can be combined for an exciting professional career.

Educators and school administrators who wish to participate in or learn more about the project can e-mail tennisnet@cislunar.com or contact:

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Nothin' but Net

Simplicity in Your Design Presentation Is the Key to an Attractive Web Site

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Let me get right to the point: the key to any successful multimedia presentation is simplicity. Most unsuccessful presentations end up that way because the message was not clear. As technology continues to evolve, so do the tricks and special effects in multimedia programs, but from Web sites to boardroom presentations, the rule is the same — simplicity! Here are a few suggestions:

1. Focus on the purpose of your presentation. A movie Web site would probably have more special effects than one for the Department of Energy.

2. Evaluate the usefulness of each special effect. Does it support your message, or is it distracting and confusing?

3. Balance effects with information. Too much information could lose your audience's attention, while too many special effects may lose your message.

Let's say you're writing a report on the migration habits of Koala bears (why not?) and you need to find some information. You type "Koala" into a local search engine and up pops "Koala World." You click on the link, the connection is made, and the screen goes black. A Koala bear dances across the screen and the words "Welcome to Koala World" blink at you boldly as the sounds of "Do you come from a land down under?" play softly in the background. You think to yourself "Wow, that's pretty neat!" You search through the information, and after printing up a couple of pages you're on your way.

Now you're about halfway through the report and you notice that you've forgotten to add what Koala bears eat, so you go back to the Web site for the information and the screen goes black. A Koala bear dances across the screen and the words "Welcome to Koala World" blink at you boldly as the sounds of "Do you come from a land down under?" play softly in the background. You think to yourself "Okay, that's still kind of neat." You flip through a couple of pages and then you find it — eucalyptus leaves.

Now the report is almost finished. You're going over it to check for mistakes when you see that you've left out one last little thing. The information is not in any of your printouts, so back to "Koala World" you go, and the screen goes black. A Koala bear dances across the screen and the words "Welcome to Koala World" blink at you boldly as the sounds of "Do you come from a land down under?" play softly in the background. You think to yourself "Man, this is really annoying. I just want some information!" The effects that impressed you at first are now slowing you down and getting in the way. The effects have overrun the presentation, and the purpose has been lost.

The problem lies in the packaging — anything will hold information, but not all information is interesting. To compensate for a less than mesmerizing topic, some designers go overboard with special effects to lighten up the information and make it more appealing.

While it may be more entertaining, the message can get lost. How do you make something like an annual report interesting? Through effective design and balanced effects that support your message. When designing a presentation, put yourself in the audience's place and evaluate. What would you want to find? What would you want to take away from it? What is the message? If you have the opportunity to check out presentations that contain similar information, definitely do so. Ask friends and coworkers to read your final draft and ask them all sorts of questions. If they don't get your point, chances are other people won't either.

All about CATS

Windows to the Universe Teams with Other CATs on New Space Weather Web Site

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The Windows to the Universe project, in collaboration with the Rice University Public Connection project and WeatherNet4, is pleased to announce the opening of a new space weather Web site at **http://www.windows.umich.edu/spaceweather** or through the Windows to the Universe homepage at **http://www.windows.umich.edu.**

This new set of pages is devoted to providing information on the Sun-Earth connection through space weather. In addition to a wealth of real-time and near real-time images and data pertaining to the Sun and the Earth's aurora and ionosphere, key concepts about the data and images are explained in easy to understand language.

Key components of the site include:
**Current Views of the Sun and the Aurora*
**What's Happening Today in Space?*
What's New
Conditions in Space Today
Is There an Aurora Today?
What's Happening on the Sun Today?
** Basic Facts about Space Weather*
Explore the Sun-Earth System

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All about CATS (Cont.)

How Storms Build in Space
Space Weather Storm Displays in the Atmosphere
Space Weather Storm Damage at Earth

Included within these pages are numerous links to other space weather sites on the World Wide Web, as well as photo galleries of exceptional auroral and solar images.

We would like to thank everyone in the space science community who has already contributed real-time data, movies, and graphics for the site. Comments on the science content are also welcome and requested. Tell us what's missing, where more details are needed, etc. Please send remarks and contributions to Janet Kozyra at jukozyra@engin.umich.edu and Roberta Johnson at rmjohnsn@umich.edu. These e-mail addresses can be accessed directly from the Web site. Thanks for your help and contributions!

FIFE's Internet Weather Explorer (IWE) Reaches New Stage in Development

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The Internet Weather Explorer (IWE) is a family of products resulting from the FIFE project which allows NASA data and information products to be combined with educational context to support elementary level weather education.

Developed by TASC, Inc. with help from Franconia Elementary School of Alexandria, VA, IWE is a way to create compelling multimedia weather lessons that combine live and stored Internet data and graphics with contextual information.

All products are based on an interactive multimedia lesson file with built-in educator controls. Lessons are Macromedia Shockwave movies that can be created by the IWEAuthor tool. Many controls and structures have been developed in part to help control group use of lessons in school computer lab environments.

* WebIWE. A Netscape Navigator-based browser interface for "playing" the lessons.
* IWEAuthor. An authoring system for creating lessons, including a parts library. Includes a GUI for creating and organizing lessons, creating interactions, creating graphics, and media.
* IWEPlayer. A stand-alone playback engine that will work even on basic Macintosh LC computers with small screens. The lessons can even be stored on floppy disks and play on offline computers.
* IWECommunity. A virtual community with interactive discussion forums and chat rooms that allows students, educators, parents, and other interested individuals to learn about and use the system.

SPARK Wraps Up School Year, Looks Ahead to Other Projects

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The Student Program for Aeronautics Resources and Knowledge (SPARK) has wrapped up another school year and is beginning the summer phase of its program. Recent accomplishments include:

Curriculum. Framed up nine additional interactive activities which will come online this summer. Each is connected to the six-week residential camp, and most are directly related to the ten internship placements.

Internship placements. Idaho SPARK will place ten Native American high school students into internships this summer. These are Upward Bound students and will begin their ten-day on-site experience on June 23. Each student will participate in a five-day orientation to the work site, a ten-day on-site experience, and a fifteen-day follow-up continuation of the on-site work. This is designed to give rural students the experience of telecomputing.

Student placement. Students will be placed at Interstate Aviation (maintenance, private pilot), Pullman-Moscow Airport (fire, maintenance, fueling), Horizon Air (ticket counter, baggage), and the University of Idaho (Industrial Technology Education Robotics Lab). Additional students may be placed in the Idaho Climate Laboratory. There is a possibility that the private pilot ground school will be offered for university credit to an additional ten students. This would be separate from the internships and offer classroom experience.

School sites. The academic year has ended and new aeronautics pages will be up shortly. These pages document classroom curricula, resources, and projects.

Industry partnership. A partnership is being established with Hewlett Packard (HP) at Lapwai school. NASA's contribution of connectivity was leveraged to get the school to wire the building. The wired building, the connectivity, and NASA's involvement were leveraged to increase HP's participation. HP is increasing Lapwai's connectivity capability and establishing a mentorship program for high school students.

MCET Airs Last "Take Off!" Program

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The Massachusetts Corporation for Educational Telecommunications (MCET) presented the last live satellite broadcast of the Take Off! Part II series, *Weather,* on May 5. The show, co-hosted by David Price and Mishelle Michaels (the 7NEWS weekend meteorologist for WHDH-TV), explored the strict interrelationships among different branches of science, introducing meteorology from the perspective of the restrictions

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imposed on the design of aircraft and airport runways. The show also investigated weather systems and meteorological factors like air pressure, temperature variations, the structure of the atmosphere, and the mechanisms of cloud formation.

Mishelle Michaels was the guest in the Career Corner, where she explained how she became a meteorologist, the type of education needed for a career in meteorology, and shared videoclips of her first appearances on television. Mish presented additional resources for students interested in the field of atmospheric sciences, including a booklet published in 1993 by the American Meteorological Society, *Challenges of our Changing Atmosphere: Careers in Atmospheric Research and Applied Meteorology*, that explores the role meteorologists play in many aspects of our daily lives, where they find employment, what salary can be expected, and the education needed to enter the profession. A copy of this document can be accessed online at **http://atm.geo.nsf.gov/AMS/pubs/careers.html**.

The development and production of this year's series were completed and delivered according to schedule, even though the project faced budget restrictions (affecting primarily the number of hours and personnel available for development). The many problems encountered (losing one presenter halfway through the series and risking losing the other toward the end) were overcome thanks to the cooperative spirit and commitment exhibited by the production team and the unconditional support of the crew.

There were 2,509 participants registered for the Take Off! Part II live broadcast for the spring of 1997. The program was viewed by students in five different states (MA, NH, IN, FL, CA). Curriculum kits were sent to sixty teachers. The total number of participants for both series, Take Off! Part I and II, in spring 1996 and spring 1997, was 8,500.

Student data (NASA EDCATS Student Feedback Forms) already submitted by the core sites is being evaluated. An analysis of this data set will be incorporated in the evaluation report. A preliminary assessment shows that the students especially enjoyed the interviews during the Career Corner, the demonstrations, and the activities. They also liked the broadcasts' audiobridge interactive feature, while they had mixed feelings about the Web Corner sessions.

The production team is currently engaged in post-production activities: logging tapes and organizing material, bibliographical resources, footage acquisitions, and copyright clearance for future reference.

The curriculum developer is still working on the first part of the teacher's guide, re-editing the materials to ensure consistency across the chapters. All teachers who register for the rebroadcast of Take Off! Part II, September - October 1997, will receive the updated version of the guide.

A new videoclip of highlights of the Take Off! Part II series was produced in the month of May for the Spring 1997 IITA conference in California.

Experience "Live From Mars" This July and into Fall

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This summer provides a once-in-a-lifetime opportunity to connect students and families to NASA's Mars Pathfinder mission to the red planet. This coming July 4 there will be fireworks on Mars. Early that morning, retro-rockets will slow NASA's Mars Pathfinder spacecraft, and sometime in the evening of Independence Day humans should see the first new Martian surface images in over twenty years as they are radioed back from an alien explorer newly arrived on the red planet!

Thanks to modern telecommunications and an unprecedented collaboration of NASA, the National Science Foundation (NSF), museums, space interest groups, and media producers, you and your students can participate more directly than ever before.

Passport to Knowledge (PTK) and the American Museum of Natural History in New York will present two two-hour Live From Mars specials — live, interactive TV programs to be offered via satellite on Sunday, July 6, and Wednesday, July 9, from 2:00-4:00 p.m. Eastern (11:00 a.m.-1:00 p.m. Pacific).

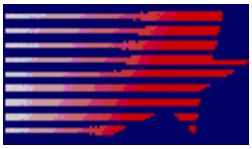
A full array of resources, including background files, field journals, biographies of the Mars mission team, researcher Q&A (student questions sent to Mars team members and Q&A pairs archived), an image gallery, a teacher discussion forum, an online downloadable teacher's guide, information about the telecasts and satellite coordinate information, and the Kids' Student Work Gallery are located at **http://quest.arc.nasa.gov/mars/.**

The July 6 (Sunday) program will feature the events of the first two days on Mars, the best color enhancements of the first pictures returned, and a chance to hear NASA scientists' first reactions. Also included will be TPS's "Planetfest," a combination Star Trek convention and celebration of space exploration and scientific discovery to be held in Pasadena, CA, just a few miles from JPL on July 4, 5, and 6. We plan to link "Planetfest" via video to JPL as well as the American Museum of Natural History in New York, the Center of Science and Industry (COSI) in Columbus, Ohio, and the Denver Museum of Natural History. It's hoped that CU-SeeMe, RealAudio, and other Internet technologies will also share "Planetfest" and the events of landing week with those unable to access satellite TV.

The July 9 (Wednesday) program will feature uplinks from NASA JPL, the Maryland Science Center, the Houston Museum of Natural Science, and NASA's Classroom of the Future in Wheeling, WV.

Though primarily designed for participation by youngsters, families, and camp groups in science museums and planetariums (since school is out in most places), anyone with access to a movable satellite dish can access the programming. Many science centers are already planning events around Pathfinder's landing. We expect many will integrate Live From Mars into this, but we can't promise or predict. Please check locally. If your museum doesn't yet know about what's going on, please share what YOU know with them and direct them to our Web site, which will have increasingly detailed information.

To access the Passport to Knowledge information hotline, phone (888)626-LIVE.

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